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Docket No. 03030

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Rouanet et al.
Group Art Unit: 1794

Serial No.: 10/679,121
Examiner: Loney, Donald J.

Filed: October 3, 2003
Confirmation No.: 2250

For: **INSULATED PANEL AND GLAZING SYSTEM COMPRISING THE SAME**

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Arlington, VA 22313-1450

RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF

Sir:

In response to the Notice of Non-Compliant Appeal Brief mailed March 20, 2009, referring to the Appeal Brief submitted February 20, 2009, Appellants respectfully submit the following corrected Appeal Brief, in which Section III "Status of Claims" provides the status of all claims filed in the application, as required in 37 CFR 41.37(c)(1)(iii).

The corrected Appeal Brief is attached. Appellants believe the Appeal Brief fully complies with 37 CFR 41.37(c).

Respectfully submitted,

Date: April 10, 2009

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APPELLANTS' BRIEF ON APPEAL

This is an appeal to the Board of Patent Appeals and Interferences from the decision of the Examiner in the Final Office Action dated January 9, 2008 rejecting claims 1-9, 11-23, 25-36, 39-43, 48-52, and 63-76 of the above-identified patent application. A Notice of Appeal was filed on July 9, 2008 and received by the USPTO on that date.

I. THE REAL PARTY IN INTEREST

The real party in interest besides the named inventors is Cabot Corporation.

II. RELATED APPEALS AND INTERFERENCES

No other appeal or interference that will directly effect or be effected by or have a bearing on the Board's decision in this appeal is known to the Appellants, the Appellants' legal representative, or the assignee.

III. STATUS OF CLAIMS

Claims 37-38, 44-47, and 53-62 were previously withdrawn in response to a restriction requirement. Claims 10 and 24 were previously cancelled in view of amendments made to claims 1 and 12. Claims 1-9, 11-23, 25-36, 39-43, 48-52, and 63-76 are pending in this application and have been finally rejected. All pending claims are on appeal. A copy of the claims on appeal can be found in the attached Claims Appendix.

IV. STATUS OF AMENDMENTS

In response to the Office Action mailed March 8, 2005, which set forth a restriction requirement, Appellants filed a Response on March 16, 2005. On June 2, 2005, Appellants received an Office Action to which Appellants filed an Amendment and Response on November 22, 2005. Appellants then received a Notice of Allowance on March 20, 2006. Appellants filed a Request for Continued Examination on June 15, 2006, and, on November 24, 2006 received a second Notice of Allowance. After filing a second Request for Continued Examination on February 22, 2007, Appellants received an Office Action dated May 16, 2007, to which an Amendment and Response was filed on October 19, 2007. Appellants then received a Final Office Action on January 9, 2008 and filed a Notice of Appeal on July 9, 2008, which was received by the USPTO on that date. No additional amendments were filed.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a translucent glazing panel comprising a) a thermoplastic panel comprising i) an outer wall having an inner surface defining an internal channel, the internal channel having an internal volume, and ii) at least one inner wall protruding from the inner surface into the internal channel, and b) hydrophobic aerogel particles, the hydrophobic aerogel particles being disposed within the channel. The present invention further relates to an insulated glazing system comprising a) a first U-shaped element, b) a second U-shaped element, the first and second elements being disposed to define a cavity therebetween, and c) an insulating panel disposed with the cavity. The insulated glazing system can further comprise hydrophobic aerogel particles disposed within the internal channel of the insulating panel, and the insulating panel of the glazing system may also be the same as the translucent glazing panel described herein.

Concise Explanation of the Subject Matter Defined in the Claims

1) Claims 1-9, and 11

Independent claim 1 recites a translucent glazing panel (paragraphs [0007]-[0008] and [0027]-[0041]) which comprises: (a) a thermoplastic panel (paragraphs [0027] and [0030]-[0038]) and (b) hydrophobic aerogel particles (paragraph [0029]). The thermoplastic panel comprises (i) an outer wall having an inner surface defining an internal channel, the internal channel having an internal volume, and (ii) at least one inner wall protruding from the inner surface into the internal channel, with the hydrophobic aerogel particles being disposed within the channel (paragraphs [0027] and [0030]-[0034] and Figures 1-3). The translucent (paragraph [0028]) glazing panel has a haze value of about 50% or more (paragraph [0041]).

Claims 2-9 and 11 depend directly or indirectly from claim 1 and recite further embodiments of the invention. In particular, claims 2-6 recite specific features of the thermoplastic panel. Claim 2 recites the structure of the panel (paragraph [0032]), claim 3 recites how the panel is fabricated (paragraph [0037]), claims 4-5 recite types of thermoplastic resins (paragraph [0039]), and claim 6 recites how the internal volume is filled with hydrophobic aerogel particles (paragraphs [0030] and [0033]). Also, claims 7-9 recite specific features concerning the hydrophobic aerogel particles (paragraph [0029]), and claim 11 recites a specific haze value (paragraph [0041]).

2) Claims 12-23, and 25

Independent claim 12 recites a translucent glazing panel (paragraphs [0007]-[0008] and [0027]-[0041]) which comprises: (a) a thermoplastic panel (paragraphs [0027] and [0030]-[0038]) and (b) hydrophobic aerogel particles (paragraph [0029]). The thermoplastic panel comprises (i) a first thermoplastic sheet, (ii) a second thermoplastic sheet, and (iii) two or more supporting members, the supporting members being disposed between the first and second thermoplastic sheets, and the supporting members defining at least one channel disposed between the first and second thermoplastic sheets, the channel having an internal volume, with the hydrophobic aerogel particles being disposed within the channel (paragraphs [0035]-[0036] and Figures 4-6). The translucent (paragraph [0028]) glazing panel has a haze value of about 50% or more (paragraph [0041]).

Claims 13-23 and 25 depend directly or indirectly from claim 12 and recite further embodiments of the invention. In particular, claims 13-20 recite specific features of the thermoplastic panel. Claims 13 and 15 recite the structure of the panel (paragraphs [0035] and [0036]), claim 14 recites how the panel is fabricated (paragraph [0037]), claim 17 recites the thickness of the sheets (paragraph [0040]), claims 18-19 recite types of thermoplastic resins (paragraph [0039]), and claims 16 and 20 how the internal volume is filled with hydrophobic aerogel particles (paragraphs [0035], and [0036]). Also, claims 21-23 recite specific features concerning the hydrophobic aerogel particles (paragraph [0029]), and claim 25 recites a specific haze value (paragraph [0041]).

3) Claims 26-36

Independent claim 26 recites an insulated glazing system (paragraphs [0009]-[0011] and [0042]-[0052]) which comprises (a) a first U-shaped element comprising a base from which at least two legs extend, (b) a second U-shaped element comprising a base from which at least two legs extend, the first and second elements being disposed to define a cavity therebetween (paragraphs [0042]-[0043]), (c) an insulating panel disposed with the cavity, and (d) hydrophobic aerogel particles (paragraph [0052]). The insulating panel comprises an outer wall defining an internal channel, the internal channel having an internal volume, with the hydrophobic aerogel particles being disposed within the channel (paragraphs [0044] and Figures 7-9). The insulating panel has a haze value of about 50% or more (paragraph [0041]).

Claims 27-36 depend directly or indirectly from claim 26 and recite further embodiments of the invention. In particular, claims 27-33 recite specific features of the insulating panel. Claims 27-29 recite the structure of the panel (paragraph [0030]-[0032]), claim 30 recites how the panel is fabricated (paragraph [0037]), claims 31-32 recite types of thermoplastic resins (paragraph [0039]), and claim 33 recites how the internal volume is filled with hydrophobic aerogel particles (paragraph [0030]). Also, claims 34-36 recite specific features concerning the hydrophobic aerogel particles (paragraph [0029]).

4) Claims 39-43 and 63

Independent claim 39 recites an insulated glazing system (paragraphs [0009]-[0011] and [0042]-[0052]) which comprises (a) a first U-shaped element comprising a base from which at least two legs extend, (b) a second U-shaped element comprising a base from which at least two legs extend, the first and second elements being disposed to define a cavity therebetween (paragraphs [0042]-[0043]), (c) an insulating panel disposed with the cavity, and (d) hydrophobic aerogel particles (paragraph [0052]). The insulated panel comprises (i) an outer wall having an inner surface defining an internal channel, the internal channel having an internal volume, and (ii) at least one inner wall protruding from the inner surface into the internal channel, the outer wall and inner wall being unitarily formed of a thermoplastic resin, with the hydrophobic aerogel particles being disposed within the channel (paragraphs [0044] and Figures 7-9). The insulating panel has a haze value of about 50% or more (paragraph [0041]).

Claims 40-43 and 63 depend directly or indirectly from claim 39 and recite further embodiments of the invention. In particular, claim 40 recites how the internal volume is filled with hydrophobic aerogel particles (paragraph [0030]), claims 41-43 recite specific features concerning the hydrophobic aerogel particles (paragraph [0029]), and claim 63 recites the structure of the panel (paragraph [0032]).

5) Claims 48-52 and 64-76

Independent claim 48 recites an insulated glazing system (paragraphs [0009]-[0011] and [0042]-[0052]) which comprises (a) a first U-shaped element comprising a base from which at least two legs extend, (b) a second U-shaped element comprising a base from which at least two legs extend, the first and second elements being disposed to define a cavity therebetween (paragraphs [0042]-[0043]), (c) an insulating panel disposed with the cavity, and (d) hydrophobic aerogel particles (paragraph [0052]). The insulating panel comprises (i) a first thermoplastic sheet, (ii) a second thermoplastic sheet, the first and second thermoplastic sheets being substantially parallel to each other, and (iii) at least two supporting members, the supporting members being disposed between the first and second thermoplastic sheets, and the supporting members defining at least one channel disposed between the first and second thermoplastic sheets, with the hydrophobic aerogel particles being disposed within the channel (paragraphs [0044]-[0045] and Figures 10-12). The insulating panel has a haze value of about 50% or more (paragraph [0041]).

Claims 49-52 and 64-76 depend directly or indirectly from claim 48 and recite further embodiments of the invention. In particular, claim 49 recites how the internal volume is filled with hydrophobic aerogel particles (paragraph [0033]), claims 50-52 recite specific features concerning the hydrophobic aerogel particles (paragraph [0029]), claim 64 recites how the panel is fabricated (paragraph [0037]), and claims 65-66 recite types of thermoplastic resins (paragraph [0039]). Also, claims 67-71 recites the use and specific features of a sealant (paragraphs [0045]-

[0048]), and claims 72-76 recite how the elements are arranged (paragraphs [0042]-[0043] and [0051]).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issues on appeal are as follows:

i) whether claims 1-9, 11-23, and 25 are patentable under 35 U.S.C. § 103(a) over DE 29917402 (DE '402) in view of either WO 98/07780 or the article "Glazings with Granular Aerogels" by Dengler et al. (the Dengler article), and

ii) whether claims 26-36, 39-43, 48-52, and 63-76 are patentable under 35 U.S.C. § 103(a) over DE 29917402 (DE '402) in view of either WO 98/07780 or the article "Glazings with Granular Aerogel" by Dengler et al. (the Dengler article), as applied to claims 1-9, 11-23, and 25 above, and further in view of EP 0742324.

VII. ARGUMENTS

i) Whether claims 1-9, 11-23, and 25 are patentable under 35 U.S.C. § 103(a) over DE 29917402 (DE '402) in view of either WO 98/07780 or the article "Glazings with Granular Aerogels" by Dengler et al. (the Dengler article)

Claims 1-9, 11-23, and 25 have been finally rejected under 35 U.S.C. § 103(a) as being unpatentable over DE 29917402 (DE '402) in view of either WO 98/07780 or the article "Glazings with Granular Aerogels" by Dengler et al. (the Dengler article).

In paragraph 4, the Final Office Action states that DE '402 teaches a glazing comprising a first and second external wall defining a cavity wherein an inner wall (one of the interior ribs between the outer walls) extends into the cavity, as in independent claim 1. Regarding independent claim 12, the Final Office Action states that the two end walls that connect the outer sheets can be considered the support members between the outer walls, as shown Figures 1 and 2. The Final Office Action also states that DE '402 discloses an aerogel insulation material in the cavity. However, the Final Office Action notes that DE '402 fails to specifically disclose the aerogels as being hydrophobic.

For this reason, the Final Office Action relies on the Dengler article, which is described as teaching that it is known to use these second generation hydrophobic aerogels in glazings for the purpose of providing an insulating affect. The Final Office Action also relies on WO 98/07780, which is described as teaching that either hydrophilic or hydrophobic aerogels are known insulative materials.

The Final Office Action therefore concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to include hydrophobic aerogels in the glazing of DE '402, motivated by the fact that the secondary references teach either is known to be used for insulating affects in glazings and that DE '402 discloses them used in general for the same purpose.

With regards to the haze value being about 50% or more in claims 1 and 12 (75% or more in claims 11 and 25), the Final Office Action states that one would be motivated to provide whatever haze value is desired for a particular application motivated by the fact that one would desire sun screening from these glazing units. Regarding claims 2-5, 7-9, 13-19, and 21-23, the Final Office Action states that, for claims 2, 3, and 13-17, the structure in DE '402 appears to be unitary, for claims 4, 5, 18, and 19, polycarbonate is disclosed in DE '402, and, for claims 7-9 and 21-23, WO 98/07780 shows the particular aerogel materials.

Arguments were filed against this rejection on October 19, 2007, and the Final Office Action states, in paragraph 6, that these arguments have been fully considered but are not persuasive. In particular, the Final Office Action states that, while it was argued that none of the references specifically disclose the recited haze value of at least 50% and that there would be no motivation or suggestion from any of the references that would teach, or lead one, to such a resultant haze, after the substitution of the known aerogels, one would have a panel containing hydrophobic aerogels therein as structurally recited. The Final Office Action also states that the primary reference discloses that transparent or translucent panels can be formed, and that translucent panels would have some degree of haze since they would not let all of the light through. Also, the Final Office Action states that the secondary references teach that the panels can be opaque or diffuse light and that the degree of transparency (i.e., degree of haze) can be controlled as desired for a particular application, thereby providing motivation to form a panel of whatever haze is needed. Furthermore, the Final Office Action states that the Dengler article also discloses that the panels diffuse light and therefore contain a certain degree of haze, which is not specifically specified, but one would also be motivated to provide whatever haze value is desired for a particular application, motivated by the fact that one would desire sun screening from these glazing units.

Appellants respectfully disagree with the rejection of the above-identified claims. Regarding claims 1 and 12, each of these claims recites, in part, a translucent glazing panel comprising a thermoplastic panel and hydrophobic aerogel particles. The translucent glazing panel has a haze value of about 50% or more.

By comparison, DE '402 relates to a double-pane insulating glass with an integral aerogel-filled, rib-reinforced double or multiple sandwich panel. However, as noted by the Final Office Action, there is no disclosure, teaching, or suggestion of the use of hydrophobic aerogel particles. Furthermore, there is no teaching or suggestion of a translucent panel having a haze value of 50% or more.

The Final Office Action therefore relies on the Dengler article as well as WO 98/07780, stating that both of these references show that hydrophobic aerogels can be used in glazing applications. However, while each of these references generally discusses hydrophobic aerogels, there is no disclosure, teaching, or suggestion in either of these references of a translucent panel having a haze value of 50% or more, as recited in the present claims. Thus, neither reference can cure the deficiency of DE '402.

Furthermore, regarding the haze value, the Final Office Action states that one having ordinary skill in the art would be motivated to provide whatever haze value is desired for a particular application since one would desire sun screening from these glazing units. However, no evidence is provided in the Final Office Action from any of the references that would teach or suggest that a haze of 50% or more is an outcome that is either desirable or achievable. The only suggestion provided in the Final Office Action is that the panels of these references can be translucent or diffuse light, which is identified in the Final Office Action as indicating a degree of haze. However, there is no evidence provided for the quantification of the degree of haze. Translucency or diffusion of light can occur at different haze levels, including those less than 50%, and therefore, use of hydrophobic aerogels would not necessarily or inevitably provide the recited haze values.

Thus, at best, the cited references merely represent a general teaching of translucency. By comparison, the present claims recite a specific degree of haze – 50% or more. There is no teaching or suggestion in any of these references, alone or in combination, that aerogel particles and, in particular, hydrophobic aerogel particles, would or could provide haze values as presently claimed. Rather, these references teach that hydrophobic aerogels can be used to provide an insulative effect.

In addition, the Final Office Action has also not provided any teaching or suggestion from any of the references, either alone or in combination, that would enable one having ordinary skill in the art to actually attain such a result. DE '402, the Dengler article, and WO 98/07780 do not even discuss the level of haze recited in the present claims, let alone provide any direction to suggest how haze values of 50% or more can be achieved. Thus, faced with the problem of how to achieve haze values of this level, while also maintaining desirable insulation properties (see paragraph [0028] of the present invention), one of ordinary skill in the art would not find any teaching in any of the cited references that would lead them to any solution, let alone the solution of using hydrophobic aerogel particles provided in the present invention. Therefore, contrary to what is indicated in the Final Office Action, there would be no motivation to substitute the aerogel particles of DE '402 with the hydrophobic aerogels of either the Dengler article or of WO 98/07780 in the panel of DE '402, with any expectation of achieving the desired haze value. By comparison, the present application does discuss haze and does teach how haze values greater than or equal to 50% can be attained (see, for example, paragraph [0041] and Example 2).

Therefore, Appellants believe that claims 1 and 12 are patentable over DE '402 in view of either the Dengler article or WO 98/07780 since none of these references, either alone or in combination, disclose, teach, or suggest a panel comprising hydrophobic aerogel particles and also having a haze value of about 50% or more. Claims 2-9 and 11, which depend directly or indirectly from claim 1, and claims 13-23 and 25, which depend directly or indirectly from claim 12, recite further embodiments of the present invention and, for at least the reasons discussed above, are also patentable over this combination of references.

Appellants therefore believe that claims 1-9, 11-23, and 25 are patentable over the combination of cited references and respectfully request that the rejection of these claims be reversed.

ii) Whether claims 26-36, 39-43, 48-52, and 63-76 are patentable under 35 U.S.C. § 103(a) over DE 29917402 (DE '402) in view of either WO 98/07780 or the article "Glazings with Granular Aerogel" by Dengler et al. (the Dengler article), as applied to claims 1-9, 11-23, and 25 above, and further in view of EP 0742324

Claims 26-36, 39-43, 48-52, and 63-76 have been finally rejected under 35 U.S.C. § 103(a) as being unpatentable over DE 29917402 (DE '402) in view of either WO 98/07780 or the article "Glazings with Granular Aerogel" by Dengler et al. (the Dengler article), as applied to claims 1-9, 11-23, and 25 above, and further in view of EP 0742324.

In paragraph 5, the Final Office Action states that the primary reference teaches the invention substantially as recited, except for the placing of the structure of claims 1 and 12 between two U-shaped exterior plates to form a glazing unit, as in independent claims 26, 39, and 48. The Final Office Action further states that, while DE '402 does show placing the structure as indicated between two flat plates to form a composite glazing, this reference fails to specifically disclose the exterior plates as being U-shaped.

For this reason, the Final Office Action relies on EP '324, which is described as disclosing that it is known to place an interior insulating structure between two U-shaped plates in order to form a composite insulating glazing therefrom, and therefore concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to place the structure of the combination of primary references between two U-shaped plates, as taught by EP '324, motivated by the fact that DE '402 discloses it is known to place this structure between two exterior plates in order to form a composite glazing unit and EP '324 discloses that external U-shaped plates are known to be used for this purpose.

Regarding the haze value being about 50% or more in claims 26, 39, and 48, the Final Office Action states that one would be motivated to provide whatever haze value is desired for a particular application motivated by the fact that one would desire sun screening from these glazing units.

Arguments were filed against this rejection on October 19, 2007, and the Final Office Action states, in paragraph 6, that these arguments have been fully considered but are not persuasive. Comments concerning these arguments are summarized above.

Appellants respectfully disagree with the rejection of the above-identified claims. Regarding claims 26, 39, and 48, each of these claims recite, in part, an insulated glazing system comprising a first U-shaped element and a second U-shaped element being disposed to define a cavity therebetween, and an insulating panel disposed within the cavity, wherein the insulated glazing system further comprises hydrophobic aerogel particles disposed within the insulating panel and wherein the insulating panel has a haze value of about 50% or more.

By comparison, and as discussed in more detail above, Appellants do not believe that DE '402, either alone or in combination with either the Dengler article or WO 98/07780, discloses, teaches, or suggests a panel comprising hydrophobic aerogel particles and also having a haze value of about 50% or more. In fact, DE '402, the Dengler article, and WO 98/07780 do not even discuss haze values, and certainly do not provide any direction or teaching to suggest how haze values greater than 50% can be achieved or that such values would inevitably result from the use of hydrophobic aerogel particles.

Furthermore, EP '324 cannot cure the deficiencies of these combinations of references. While EP '324 generally describes a light-transmitting portion of a wall structure, such as a window or facade cladding, consisting of two rows of U-shaped glass sections, wherein the cavities formed by these sections are filled with thermal insulation, Appellants do not believe that there is any disclosure, teaching, or suggestion of the use of hydrophobic aerogels. Glass capillaries, honeycomb, and parallel tubes are described. In addition, Appellants also do not believe that there is any disclosure, teaching, or suggestion that the light-transmitting portion has a haze value of 50% or more. Thus, Applicants believe that EP '324 cannot cure the deficiencies of the combination of references cited by the Examiner.

Furthermore, while the cavities formed from the U-shaped sections shown of EP '324 are filled with thermal insulation, there does not appear to be any teaching or suggestion of how these sections can be used in combination with a second, separate insulation panel. Only filler materials are shown. By comparison, such a teaching is provided in the present application, including, for example, paragraph [0042]-[0050], as well as the figures.

Therefore, Appellants believe that claims 26, 39, and 48 are patentable over DE '402 in view of either the Dengler article or WO 98/07780, and further in view of EP '324 since none of these references, either alone or in combination, disclose, teach, or suggest an insulative glazing system comprising U-shaped shaped elements and an insulating panel, wherein the insulative glazing system comprises hydrophobic aerogel particles and the insulative panel has a haze value of about 50% or more. Claims 27-36, which depend directly or indirectly from claim 26, claims 40-43 and 63, which depend directly or indirectly from claim 39, and claims 49-52 and 64-76, which depend directly or indirectly from claim 48, recite further embodiments of the present invention and, for at least the reasons discussed above, are also patentable over this combination of references.

Appellants therefore believe that claims 26-36, 39-43, 48-52, and 63-76 are patentable over the combination of cited references and respectfully request that the rejection of these claims be reversed.

Conclusion

For the reasons discussed above, Appellants believe that the rejections of the claims of the present application should be reversed and this application should be allowed to pass to issuance.

Respectfully submitted,

By:

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Date: April 10, 2009
03030-appeal brief

VIII. CLAIMS APPENDIX

1. A translucent glazing panel comprising:

(a) a thermoplastic panel comprising (i) an outer wall having an inner surface defining an internal channel, the internal channel having an internal volume, and (ii) at least one inner wall protruding from the inner surface into the internal channel, and

(b) hydrophobic aerogel particles, the hydrophobic aerogel particles being disposed within the channel,

wherein the translucent glazing panel has a haze value of about 50% or more.

2. The translucent glazing panel of claim 1, wherein the inner wall intersects the inner surface at at least two distinct points, the outer wall and inner wall defining at least a second internal channel, and the second internal channel has an internal volume.

3. The translucent glazing panel of claim 1, wherein the outer wall and the inner wall are unitarily formed of a thermoplastic resin.

4. The translucent glazing panel of claim 1, wherein the thermoplastic comprises a thermoplastic resin selected from the group consisting of polycarbonate, polyethylene, poly (methyl methacrylate), poly (vinyl chloride), and mixtures thereof.

5. The translucent glazing panel of claim 4, wherein the thermoplastic comprises polycarbonate.

6. The translucent glazing panel of claim 1, wherein substantially all of the internal volume of the channel is filled with hydrophobic aerogel particles.

7. The translucent glazing panel of claim 1, wherein the hydrophobic aerogel particles are organic aerogel particles selected from the group consisting of resorcinol-formaldehyde aerogel particles, melamine-formaldehyde aerogel particles, and combinations thereof.

8. The translucent glazing panel of claim 1, wherein the hydrophobic aerogel particles are metal oxide aerogel particles selected from the group consisting of silica aerogel particles, titania aerogel particles, alumina aerogel particles, and combinations thereof.

9. The translucent glazing panel of claim 8, wherein the hydrophobic aerogel particles are silica aerogel particles.

11. The translucent glazing panel of claim 1, wherein the thermoplastic glazing panel has a haze value of about 75% or more.

12. A translucent glazing panel comprising:

(a) a thermoplastic panel comprising (i) a first thermoplastic sheet, (ii) a second thermoplastic sheet, and (iii) two or more supporting members, the supporting members being disposed between the first and second thermoplastic sheets, and the supporting members defining at least one channel disposed between the first and second thermoplastic sheets, the channel having an internal volume, and

(b) hydrophobic aerogel particles, the hydrophobic aerogel particles being disposed within the channel,

wherein the translucent glazing panel has a haze value of about 50% or more.

13. The translucent glazing panel of claim 12, wherein the first thermoplastic sheet is substantially parallel to the second thermoplastic sheet.

14. The translucent glazing panel of claim 12, wherein the first thermoplastic sheet, the second thermoplastic sheet, and the supporting members are unitarily formed of a thermoplastic resin.

15. The translucent glazing panel of claim 12, wherein the thermoplastic panel further comprises a third thermoplastic sheet, the third thermoplastic sheet being disposed between the first and the second thermoplastic sheets, and the third thermoplastic sheet and the supporting members defining at least two rows of channels disposed between the first and second thermoplastic sheets.

16. The translucent glazing panel of claim 15, wherein the channels have an internal volume and at least a portion of the internal volume of each of the channels in one of the rows of channels is filled with hydrophobic aerogel particles.

17. The translucent glazing panel of claim 12, wherein the first and second thermoplastic sheets are separated by less than about 30 mm.

18. The translucent glazing panel of claim 12, wherein the thermoplastic comprises a thermoplastic resin selected from the group consisting of polycarbonate, polyethylene, poly (methyl methacrylate), poly (vinyl chloride), and mixtures thereof.

19. The translucent glazing panel of claim 18, wherein the thermoplastic comprises polycarbonate.

20. The translucent glazing panel of claim 12, wherein substantially all of the internal volume of the channel is filled with hydrophobic aerogel particles.

21. The translucent glazing panel of claim 12, wherein the hydrophobic aerogel particles are organic aerogel particles selected from the group consisting of resorcinol-formaldehyde aerogel particles, melamine-formaldehyde aerogel particles, and combinations thereof.

22. The translucent glazing panel of claim 12, wherein the hydrophobic aerogel particles are metal oxide aerogel particles selected from the group consisting of silica aerogel particles, titania aerogel particles, alumina aerogel particles, and combinations thereof.

23. The translucent glazing panel of claim 22, wherein the hydrophobic aerogel particles are silica aerogel particles.

25. The translucent glazing panel of claim 12, wherein the thermoplastic glazing panel has a haze value of about 75% or more.

26. An insulated glazing system comprising :

(a) a first U-shaped element comprising a base from which at least two legs extend,

(b) a second U-shaped element comprising a base from which at least two legs extend, the first and second elements being disposed to define a cavity therebetween,

(c) an insulating panel disposed within the cavity, the insulating panel comprising an outer wall defining an internal channel, the internal channel having an internal volume, and

(d) hydrophobic aerogel particles, the hydrophobic aerogel particles being disposed within the internal channel,

wherein the insulating panel has a haze value of about 50% or more.

27. The insulated glazing system of claim 26, wherein the outer wall of the insulating panel comprises a thermoplastic resin.

28. The insulated glazing system of claim 26, wherein the outer wall has an inner surface, and at least one inner wall protrudes from the inner surface into the internal channel.

29. The insulated glazing system of claim 28, wherein the inner wall intersects the inner surface at at least two distinct points, the outer wall and the inner wall defining at least a second internal channel, and the second internal channel has an internal volume.

30. The insulated glazing system of claim 26, wherein the outer wall and the inner wall are unitarily formed of a thermoplastic resin.

31. The insulated glazing system of claim 30, wherein the thermoplastic resin is selected from the group consisting of polycarbonate, polyethylene, poly (methyl methacrylate), poly (vinyl chloride), and mixtures thereof.

32. The insulated glazing system of claim 31, wherein the thermoplastic resin comprises polycarbonate.

33. The insulated glazing system of claim 26, wherein substantially all of the internal volume of the internal channel is filled with hydrophobic aerogel particles.

34. The insulated glazing system of claim 26, wherein the hydrophobic aerogel particles are organic aerogel particles selected from the group consisting of resorcinol-formaldehyde aerogel particles, melamine-formaldehyde aerogel particles, and combinations thereof.

35. The insulated glazing system of claim 26, wherein the hydrophobic aerogel particles are metal oxide aerogel particles selected from the group consisting of silica aerogel particles, titania aerogel particles, alumina aerogel particles, and combinations thereof.

36. The insulated glazing system of claim 35, wherein the hydrophobic aerogel particles are silica aerogel particles.

39. An insulated glazing system comprising:

(a) a first U-shaped element comprising a base from which at least two legs extend,

(b) a second U-shaped element comprising a base from which at least two legs extend, the first and second elements being disposed to define a cavity therebetween, and

(c) an insulating panel disposed within the cavity, the insulating panel comprising (i) an outer wall having an inner surface defining an internal channel, the internal channel having an internal volume, and (ii) at least one inner wall protruding from the inner surface into the internal channel, the outer wall and inner wall being unitarily formed of a thermoplastic resin,

wherein the insulated glazing system further comprises hydrophobic aerogel particles, the hydrophobic aerogel particles being disposed within the internal channel, and wherein the insulating panel has a haze value of about 50% or more.

40. The insulated glazing system of claim 39, wherein substantially all of the internal volume of the internal channel is filled with hydrophobic aerogel particles.

41. The insulated glazing system of claim 39, wherein the hydrophobic aerogel particles are organic aerogel particles selected from the group consisting of resorcinol-formaldehyde aerogel particles, melamine-formaldehyde aerogel particles, and combinations thereof.

42. The insulated glazing system of claim 39, wherein the hydrophobic aerogel particles are metal oxide aerogel particles selected from the group consisting of silica aerogel particles, titania aerogel particles, alumina aerogel particles, and combinations thereof.

43. The insulated glazing system of claim 42, wherein the hydrophobic aerogel particles are silica aerogel particles.

48. An insulated glazing system comprising:

(a) a first U-shaped element comprising a base from which at least two legs extend,

(b) a second U-shaped element comprising a base from which at least two legs extend, the first and second element being disposed to define a cavity therebetween, and

(c) an insulating panel disposed within the cavity, the insulating panel comprising (i) a first thermoplastic sheet, (ii) a second thermoplastic sheet, the first and second thermoplastic sheets being substantially parallel to each other, and (iii) at least two supporting members, the supporting members being disposed between the first and second thermoplastic sheets, and the supporting members defining at least one channel disposed between the first and second thermoplastic sheets,

wherein the insulated glazing system further comprises hydrophobic aerogel particles, the hydrophobic aerogel particles being disposed within the channel, and wherein the insulating panel has a haze value of about 50% or more.

49. The insulated glazing system of claim 48, wherein substantially all of the internal volume of the internal channel is filled with hydrophobic aerogel particles.

50. The insulated glazing system of claim 48, wherein the hydrophobic aerogel particles are organic aerogel particles selected from the group consisting of resorcinol-formaldehyde aerogel particles, melamine-formaldehyde aerogel particles, and combinations thereof.

51. The insulated glazing system of claim 48, wherein the hydrophobic aerogel particles are metal oxide aerogel particles selected from the group consisting of silica aerogel particles, titania aerogel particles, alumina aerogel particles, and combinations thereof.

52. The insulated glazing system of claim 51, wherein the hydrophobic aerogel particles are silica aerogel particles.

63. The insulated glazing system of claim 39, wherein the inner wall intersects the inner surface at at least two distinct points, the outer wall and the inner wall defining at least a second internal channel, and the second internal channel has an internal volume.

64. The insulated glazing system of claim 48, wherein the first thermoplastic sheet, the second thermoplastic sheet, and the supporting members are unitarily formed of a thermoplastic resin.

65. The insulated glazing system of claim 64, wherein the thermoplastic resin is selected from the group consisting of polycarbonate, polyethylene, poly (methyl methacrylate), poly (vinyl chloride), and mixtures thereof.

66. The insulated glazing system of claim 65, wherein the thermoplastic resin comprises polycarbonate.

67. The insulated glazing system of claim 48, wherein the insulated glazing system further comprises at least one sealant disposed between adjacent portions of the first and second elements.

68. The insulated glazing system of claim 67, wherein the sealant comprises silicone.

69. The insulated glazing system of claim 68, wherein the sealant comprises a silicone gasket.

70. The insulated glazing system of claim 67, wherein the insulating panel has a perimeter, and the sealant is attached to at least a portion of the perimeter of the insulating panel.

71. The insulated glazing system of claim 67, wherein at least a portion of the sealant is disposed between the insulating panel and at least one of the first and second elements.

72. The insulated glazing system of claim 48, wherein the cavity defined by the first and second elements has a length and a width, and the insulating panel is substantially coextensive with the length and the width of the cavity.

73. The insulated glazing system of claim 73, wherein the insulating panel is coextensive with the width of the cavity.

74. The insulated glazing system of claim 48, wherein the insulating panel does not directly contact the first or second elements.

75. The insulated glazing system of claim 48, wherein the base of the first element is substantially parallel to the base of the second element.

76. The insulated glazing system of claim 48, wherein the legs of the first element are substantially parallel to the legs of the second element.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.